AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) A self-enhancing search system for <u>automatically</u> providing expanded keyword searches comprising:

a semantic taxonomy containing semantic ~~nodes~~ <u>node terms</u> in a hierarchical structure<u>, each semantic node term identifying groups of related keywords</u>;

a search system text analyzer that periodically looks through <u>a set of</u> documents for a database and identifies ~~semantic node~~ keyword terms used in <u>each of</u> the ~~semantic taxonomy applicable to keyword terms used in the~~ documents that occur in the hierarchical structure;

a semantic binder for attaching <u>a textual index</u> to <u>each of the documents in</u> [[a]] the set of the documents<u>, the textual index for each of the documents including at least</u> one [[a]] semantic node term ~~applicable to~~ <u>that identifies</u> keyword terms used in the <u>document</u> ~~set of the documents and related by the semantic node term~~; and

a relevant document finder which automatically<u>, without user intervention,</u>

enhances a users keyword query entry with the semantic node term <u>that</u> <u>identifies the</u> ~~applicable to a~~ keyword query term in the users keyword query to create an enhanced keyword query<u>, the enhanced keyword query including both</u> <u>the keyword query term and the semantic node term,</u> and<u>,</u>

based on the enhanced keyword query, ~~including both the users keyword~~ ~~query term and the semantic node term, not only~~ locates documents in the set of documents that contain a match for the ~~users~~ keyword query term ~~but also~~

locates and documents of the set in the set of documents that which do not

contain a match for the keyword query term in the users keyword query but

contain other keyword search terms of the set of documents that are linked to the

keyword query term by the semantic node term identifying the applicable to the

users keyword query term to thereby increase the number of documents returned

to the user.

2. (Cancelled).

3. (Currently Amended) The search system of claim [[2]] 1 including a semantic

dictionary which defines user keyword query terms in user queries in accordance with

the semantic terms used to identify nodes in the hierarchical structure.

4. (Previously Presented) The search system of claim 3 including a semantic dictionary

builder which systematically examines the system log off line for new keyword queries

to increase the keyword terms in the hierarchical structure and associate them with one

or more semantic node terms used to identify the nodes of that structure.

5. (Previously Presented) The search system of claim 4 including ranking the results of

searches using the enhanced queries to place terms in the semantic dictionary in order

of most often used keyword query terms to reduce table lookup time.

6. (Previously Presented) The search system of claim 5, wherein the semantic dictionary builder includes:

a sub-module that identifies domain specific terms in a given keyword query, using domain specific glossary;

a sub-module that finds synonyms and related terms for the identified keyword query terms, using a domain specific thesaurus;

a sub-module that finds that statistically close terms to the identified keyword query terms; and

a sub-module that identifies relevant domain specific categories for the identified keyword terms, using domain specific ontology.

7. (Previously Presented) The search system of claim 6, wherein the dictionary builder includes:

a sub-module that binds keywords in the identified categories of the hierarchical structures, using the results of the text analyzer.

8. (Currently Amended) The search system of claim 7, wherein the semantic binder includes:

a sub-module that adds new doc-query links to the meta-data of the corresponding textual index entries to link the documents to the semantic <u>node terms in the hierarchical structure</u> ~~taxonomy categories~~.

9. (Currently Amended) <u>A computer program comprising program code embodied in at least one computer-readable storage medium, which when executed, enables a computer system to implement a method of automatically providing expended keyword searches to increase the scope of keyword searches, the method</u> ~~Self-enhancing search program on a computer usable medium~~ comprising:

<u>creating a semantic taxonomy containing semantic node terms in a hierarchical structure, each semantic node term identifying groups of related keywords</u> ~~semantic taxonomy code containing semantic nodes in a hierarchical structure~~;

<u>periodically looking</u> ~~search system text analyzer code that periodically looks~~ through <u>a set of</u> documents for a database ~~and identifies semantic node terms in the semantic taxonomy applicable to keyword terms used in the documents~~ <u>to identify any keyword terms used in each of the documents that occur in the hierarchical structure</u>;

~~semantic binder code~~ <u>attaching</u> ~~a subset of the documents for the database to a semantic node term applicable to various keyword terms used in the subset of documents~~ <u>a textual index for to each of the documents, the textual index for each of the documents including at least one semantic node term that identifies a keyword term used in the document; and</u>

~~query enhancer code which~~ <u>automatically</u><u>,</u> ~~adds the semantic node term to a user keyword query containing a keyword search term applicable to the semantic node term~~ <u>without user intervention, enhancing a users keyword query to create an enhanced keyword query by adding the semantic node term that identifies a keyword query term in the users keyword query to the keyword query term, the enhanced keyword query including both the keyword query term and the semantic node term; and</u><u>,</u>

~~relevant document finder code which~~ based on the enhanced ~~queries~~ keyword query, ~~including the semantic node term locates~~ locating documents in the set of documents that contain a match for the keyword query term in the users keyword query and documents in the set of documents which do not contain a match for the keyword query term in the users keyword query but contain other keyword search terms that are linked to the keyword query term ~~the keyword search term query but contain at least one other keyword term of the various search terms that are related to the keyword search term~~ by the semantic node term identifying the keyword query term to thereby increase the number of documents returned to the user ~~applicable to users search~~.

10. (Cancelled).

11. (Currently Amended) The ~~search~~ computer program of claim [[10]] 9, the method further comprising defining ~~including code for a semantic dictionary which defines~~ user keyword query terms in user keyword queries in accordance with the semantic nodes in [[the]] a semantic dictionary.

12. (Currently Amended) The ~~search~~ computer program of claim 9, the method further comprising ~~11 including code for a semantic dictionary builder which off line regularly examines~~ systematically off line examining new user keyword queries in [[the]] a system log to increase the keyword terms in the semantic dictionary and associates them with one or more semantic ~~nodes~~ node term.

13. (Currently Amended) The ~~search~~ <u>computer</u> program of claim 12<u>, the method</u> <u>further comprising</u> ~~including code for~~ ranking the results of searches using the enhanced queries to place keyword query terms in order of most used keyword terms to reduce table lookup time.

14. (Currently Amended) The ~~search~~ <u>computer</u> system program of claim 13, ~~wherein~~ ~~the semantic binder includes:~~

    ~~code for a sub-module that identifies~~ <u>identifying</u> domain specific keyword terms in a given query, using domain specific glossary;

    ~~code for a sub-module that finds~~ <u>finding</u> synonyms and related terms for the identified keyword terms, using domain specific thesaurus;

    ~~code for a sub-module that finds~~ <u>finding</u> other statistically close keyword terms; and

    ~~code for a sub-module that identifies~~ <u>identifying</u> relevant domain specific categories for that identified keyword terms, using domain specific ontology.

15. (Currently Amended) The ~~search~~ <u>computer</u> program of claim 14<u>, the method</u> <u>further comprising</u> ~~wherein the dictionary builder includes code for a sub-module that~~ ~~binds~~ <u>binding</u> keyword queries in the identified semantic taxonomy categories, using the original results of the semantic binder.

16. (Currently Amended) The ~~search system~~ <u>computer</u> program of claim 15, <u>the</u> <u>method further comprising</u> ~~wherein a semantic binder including the module comprises:~~

~~code for a sub-module that adds~~ <u>adding</u> new doc-query links to the meta-data of the

textual index entries to link the documents to the semantic taxonomy categories.

17. (Currently Amended) A method for a computer search system to interrogate a

database that automatically provides expanded keyword search queries comprising:

      providing a semantic taxonomy containing semantic ~~nodes~~ <u>node terms</u> in a

hierarchical structure<u>, each semantic node term identifying groups of related keywords</u>;

      providing a search system text analyzer that periodically looks through <u>a set of</u>

documents for a database and identifies ~~semantic node~~ <u>keyword</u> terms <u>used</u> in <u>each of</u>

~~the semantic taxonomy applicable to keyword terms used in~~ the documents <u>that occur</u>

<u>in the hierarchical structure</u>;

      using a semantic binder for attaching <u>a textual index</u> to <u>each of the documents in</u>

[[a]] <u>the</u> ~~semantic node term to database textual indexes of a~~ set of documents<u>, the</u>

<u>textual index for each of the documents including at least one</u> ~~which~~ semantic node

term ~~is applicable to different~~ <u>that identifies</u> keyword terms used in the <u>document</u> ~~set of~~

~~documents related by the semantic node term~~; and

      a relevant document finder which automatically<u>, without user intervention,</u>

          enhances a users keyword query entry with the semantic node term <u>that</u>

<u>identifies</u> ~~applicable to~~ the users keyword query <u>in the users keyword query</u> to

automatically create an enhanced keyword query<u>, the enhanced keyword query</u>

including both the ~~users~~ keyword query term and the semantic node term<u>, and,</u>

          <u>based on the enhanced keyword query,</u> ~~that not only located~~ <u>locates</u>

documents of the set <u>of documents</u> that contain a match for the ~~users~~ keyword

query term ~~containing the users keyword query term but also locates~~ and

documents of the set of documents that ~~which~~ do not contain a match for the

~~users~~ keyword query term in ~~with~~ the users keyword query ~~term~~ but ~~which~~ contain

other different keyword search terms ~~of the set of documents~~ that are linked to

the keyword query term by the semantic node term identifying the keyword query

term to thereby increase the number of documents returned to the user ~~in the~~

~~users keyword query containing the users keyword search~~.

18. (Cancelled).

19. (Currently Amended) The method of claim [[2]] 17, the method further including ~~the~~

~~step of~~ using a semantic dictionary which defines user keyword query terms in user

queries in accordance with the nodes in the hierarchical structure.

20. (Currently Amended) The search method of claim 19, the method further including

~~the step of~~ using a semantic dictionary builder which systematically examines [[the]] a

system log off line for new keyword queries to increase the keyword terms in the

semantic dictionary and associate them with one or more nodes in the hierarchical

structure.